

WHAT IS CLAIMED IS:

1           1.       A method comprising:  
2           attempting in a first attempt to acquire a first resource for a task requiring both a  
3       first resource and a second resource;  
4           enqueueing said task on a first queue if said first attempt to acquire said first  
5       resource for said task fails;  
6           acquiring in a second attempt said first resource for said task;  
7           removing said task from said first queue;  
8           attempting in a first attempt to acquire said second resource for said task;  
9           enqueueing said task on a second queue if said first attempt to acquire said second  
10       resource for said task fails; and  
11          releasing said first resource for said task if said first attempt to acquire said  
12       second resource for said task fails.

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1           2.       The method of claim 1 wherein said first task has a first priority, and  
2       wherein said first attempt to acquire said first resource fails when a second task having  
3       said first priority in enqueued on said first queue.

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1           3.       The method of claim 2 wherein said first task has a first priority, said  
2       method further comprising:  
3           attempting in a first attempt to acquire said first resource for a third task requiring  
4       said first resource and having a second priority higher than said first priority, and  
5           enqueueing said third task on a third queue if said first attempt to acquire said first  
6       resource for said third task fails; and  
7           wherein said first attempt to acquire said first resource for said first task fails  
8       when said third task having said second priority is in enqueued on said third queue.

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1           4. The method of claim 3 wherein said first task has a first priority, and wherein  
2 said first attempt to acquire said second resource fails when a fourth task having said first  
3 priority in enqueued on said second queue.

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1           5. The method of claim 4 wherein said first task has a first priority, said  
2 method further comprising:  
3           attempting in a first attempt to acquire said second resource for a fifth task  
4 requiring said second resource and having a second priority higher than said first priority,  
5 and

6           enqueueing said fifth task on a fourth queue if said first attempt to acquire said  
7 second resource for said fifth task fails; and

8           wherein said first attempt to acquire said second resource for said first task fails  
9 when said fifth task having said second priority is in enqueued on said fourth queue.

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1           6. The method of claim 5 further comprising:  
2           acquiring in a third attempt said first resource for said first task;  
3           attempting to acquire in a second attempt said second resource for said first task;  
4 and  
5           releasing said first resource for said first task if said second attempt to acquire  
6 said second resource for said task fails.

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1           7. The method of claim 5 further comprising:  
2           acquiring in a third attempt said first resource for said first task;  
3           acquiring in a second attempt said second resource for said first task;  
4           removing said first task from said second queue; and  
5           dispatching said first task to be completed using said first and second resources.

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1           8. The method of claim 7 further comprising:

2 finding another task enqueued on one of said second and fourth queues for said  
3 second resource;  
4 acquiring said first resource for said other task;  
5 attempting to acquire said second resource for said other task;  
6 removing said other task from its queue if said attempt to acquire said second  
7 resource for said other task succeeds;  
8 dispatching said other task to be completed using said first and second resources  
9 if said attempt to acquire said second resource for said other task succeeds; and  
10 releasing said first resource for said other task if said attempt to acquire said  
11 second resource for said other task fails.

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1 9. The method of claim 7 wherein said third attempt is initiated by the  
2 second resource becoming free.

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1 10. The method of claim 7 wherein said third attempt is initiated by the first  
2 resource becoming free.

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1 11. The method of claim 7 further comprising:  
2 after all tasks have been removed from said second and fourth queues, finding a  
3 next task enqueued on one of said first and third queues for said first resource;  
4 acquiring said first resource for said next task ;  
5 attempting to acquire said second resource for said next task;  
6 removing said next task from its queue if said attempt to acquire said second  
7 resource for said next task succeeds;  
8 dispatching said next task to be completed using said first and second resources if  
9 said attempt to acquire said second resource for said next task succeeds; and  
10 releasing said first resource for said next task if said attempt to acquire said  
11 second resource for said next task fails.

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1           12.     An article of manufacture wherein the article of manufacture causes  
2 operations, the operations comprising:  
3           attempting in a first attempt to acquire a first resource for a task requiring both a  
4 first resource and a second resource;  
5           enqueueing said task on a first queue if said first attempt to acquire said first  
6 resource for said task fails;  
7           acquiring in a second attempt said first resource for said task;  
8           removing said task from said first queue;  
9           attempting in a first attempt to acquire said second resource for said task;  
10          enqueueing said task on a second queue if said first attempt to acquire said second  
11 resource for said task fails; and  
12          releasing said first resource for said task if said first attempt to acquire said  
13 second resource for said task fails.

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1           13.     The article of claim 12 wherein said first task has a first priority, and  
2 wherein said first attempt to acquire said first resource fails when a second task having  
3 said first priority in enqueued on said first queue.

1           14.     The article of claim 13 wherein said first task has a first priority, said  
2 operations further comprising:  
3           attempting in a first attempt to acquire said first resource for a third task requiring  
4 said first resource and having a second priority higher than said first priority, and  
5           enqueueing said third task on a third queue if said first attempt to acquire said first  
6 resource for said third task fails; and  
7           wherein said first attempt to acquire said first resource for said first task fails  
8 when said third task having said second priority is in enqueued on said third queue.

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1           15. The article of claim 14 wherein said first task has a first priority, and wherein  
2 said first attempt to acquire said second resource fails when a fourth task having said first  
3 priority in enqueued on said second queue.

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1           16. The article of claim 15 wherein said first task has a first priority, said  
2 operations further comprising:

3           attempting in a first attempt to acquire said second resource for a fifth task  
4 requiring said second resource and having a second priority higher than said first priority,  
5 and

6           enqueueing said fifth task on a fourth queue if said first attempt to acquire said  
7 second resource for said fifth task fails; and

8           wherein said first attempt to acquire said second resource for said first task fails  
9 when said fifth task having said second priority is in enqueued on said fourth queue.

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1           17. The article of claim 16, said operations further comprising:

2           acquiring in a third attempt said first resource for said first task;

3           attempting to acquire in a second attempt said second resource for said first task;

4 and

5           releasing said first resource for said first task if said second attempt to acquire  
6 said second resource for said task fails.

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1           18. The article of claim 16, said operations further comprising:

2           acquiring in a third attempt said first resource for said first task;

3           acquiring in a second attempt said second resource for said first task;

4           removing said first task from said second queue; and

5           dispatching said first task to be completed using said first and second resources.

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1           19. The article of claim 18, said operations further comprising:

2 finding another task enqueued on one of said second and fourth queues for said  
3 second resource;  
4 acquiring said first resource for said other task;  
5 attempting to acquire said second resource for said other task;  
6 removing said other task from its queue if said attempt to acquire said second  
7 resource for said other task succeeds;  
8 dispatching said other task to be completed using said first and second resources  
9 if said attempt to acquire said second resource for said other task succeeds; and  
10 releasing said first resource for said other task if said attempt to acquire said  
11 second resource for said other task fails.

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1 20. The article of claim 18 wherein said third attempt is initiated by the  
2 second resource becoming free.

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1 21. The article of claim 18 wherein said third attempt is initiated by the first  
2 resource becoming free.

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1 22. The article of claim 18, said operations further comprising:  
2 after all tasks have been removed from said second and fourth queues, finding a  
3 next task enqueued on one of said first and third queues for said first resource;  
4 acquiring said first resource for said next task ;  
5 attempting to acquire said second resource for said next task;  
6 removing said next task from its queue if said attempt to acquire said second  
7 resource for said next task succeeds;  
8 dispatching said next task to be completed using said first and second resources if  
9 said attempt to acquire said second resource for said next task succeeds; and  
10 releasing said first resource for said next task if said attempt to acquire said  
11 second resource for said next task fails.

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1           23.     A system comprising:  
2                 means for attempting in a first attempt to acquire a first resource for a task  
3 requiring both a first resource and a second resource;  
4                 means for enqueueing said task on a first queue if said first attempt to acquire said  
5 first resource for said task fails;  
6                 means for acquiring in a second attempt said first resource for said task;  
7                 means for removing said task from said first queue;  
8                 means for attempting in a first attempt to acquire said second resource for said  
9 task;  
10                means for enqueueing said task on a second queue if said first attempt to acquire  
11 said second resource for said task fails; and  
12                means for releasing said first resource for said task if said first attempt to acquire  
13 said second resource for said task fails.

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1           24.     The system of claim 23 wherein said first task has a first priority, and  
2 wherein said first attempt to acquire said first resource fails when a second task having  
3 said first priority in enqueued on said first queue.

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1           25.     The system of claim 24 wherein said first task has a first priority, said  
2 system further comprising:  
3                 means for attempting in a first attempt to acquire said first resource for a third  
4 task requiring said first resource and having a second priority higher than said first  
5 priority, and  
6                 means for enqueueing said third task on a third queue if said first attempt to  
7 acquire said first resource for said third task fails; and  
8                 wherein said first attempt to acquire said first resource for said first task fails  
9 when said third task having said second priority is in enqueued on said third queue.

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1           26. The system of claim 25 wherein said first task has a first priority, and  
2 wherein said first attempt to acquire said second resource fails when a fourth task having  
3 said first priority in enqueued on said second queue.

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1           27. The system of claim 26 wherein said first task has a first priority, said  
2 system further comprising:

3           means for attempting in a first attempt to acquire said second resource for a fifth  
4 task requiring said second resource and having a second priority higher than said first  
5 priority, and

6           means for enqueueing said fifth task on a fourth queue if said first attempt to  
7 acquire said second resource for said fifth task fails; and

8           wherein said first attempt to acquire said second resource for said first task fails  
9 when said fifth task having said second priority is in enqueued on said fourth queue.

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1           28. The system of claim 27 further comprising:

2           means for acquiring in a third attempt said first resource for said first task;

3           means for attempting to acquire in a second attempt said second resource for said  
4 first task; and

5           means for releasing said first resource for said first task if said second attempt to  
6 acquire said second resource for said task fails.

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1           29. The system of claim 27 further comprising:

2           means for acquiring in a third attempt said first resource for said first task;

3           means for acquiring in a second attempt said second resource for said first task;

4           means for removing said first task from said second queue; and

5           means for dispatching said first task to be completed using said first and second  
6 resources.

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1           30. The system of claim 29 further comprising:  
2           means for finding another task enqueued on one of said second and fourth queues  
3   for said second resource;  
4           means for acquiring said first resource for said other task;  
5           means for attempting to acquire said second resource for said other task;  
6           means for removing said other task from its queue if said attempt to acquire said  
7   second resource for said other task succeeds;  
8           means for dispatching said other task to be completed using said first and second  
9   resources if said attempt to acquire said second resource for said other task succeeds; and  
10          means for releasing said first resource for said other task if said attempt to acquire  
11   said second resource for said other task fails.